FOREST EXCISE TAX -- ROAD SUMMARY SHEET

Region: _Pacific Cascade_____

Timber Sale Name: _Long Jump_____

Application Number: _____

Excise Tax Applicable Activities

Construction: _2522_____ linear feet
Road to be constructed (optional and required) but not abandoned

Reconstruction: __6294_____ linear feet
Road to be reconstructed (optional and required) but not abandoned

Abandonment: __N/A_____ linear feet
Abandonment of existing roads not reconstructed under the contract

Deactivation: __1693_____ linear feet
Road to be made undriveable but not officially abandoned.

Pre-Haul Maintenance: _7920_____ linear feet
Existing road to receive maintenance work (specifically required by the contract) prior to haul

Excise Tax Exempt Activities

Temporary Optional Construction: _____ linear feet
Optional roads to be constructed and then abandoned

Temporary Optional Reconstruction: _____ linear feet
Optional roads to be reconstructed and then abandoned

New Abandonment: _____ linear feet
Abandonment of roads constructed or reconstructed under the contract

All parties must make their own assessment of the taxable or non-taxable status of any work performed under the timber sale contract. The Department of Revenue bears responsibility for determining forest road excise taxes. The Department of Natural Resources developed this form to help estimate the impact of forest excise taxes. However, the information provided may not precisely calculate the actual amount of taxes due. The Department of Revenue is available for consultation by calling 1.800.548.8829.

(Revised 7/04)

STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES
PACIFIC CASCADE REGION

LONG JUMP

ROAD PLAN

SECTION 3, TOWNSHIP 9 NORTH, RANGE 4 WEST, W.M.
SECTION 34, TOWNSHIP 10 NORTH, RANGE 4 WEST, W.M.
COWLITZ COUNTY

ST. HELENS DISTRICT

AGREEMENT NO.: 30-07

CONTRACT ADMINISTRATOR: Colin Robertson

DATE: 06/01/2004

STAFF ENGINEER: Greg Johnson

DRAWN & COMPILED BY: Alicia Compton

SECTION 0 – SCOPE OF PROJECT

This project includes but is not limited to construction and optional construction including:

clearing;
grubbing;
right-of-way debris disposal;
excavation and/or embankment to subgrade;
landing construction;
acquisition and installation of drainage structures;
compaction of road surface;
acquisition, manufacture, and application of rock;
grass seeding.

This project also includes but is not limited to reconstruction including:

clearing existing excavation and embankment slopes;
grubbing existing excavation and embankment slopes;
right-of-way debris disposal;
spot rocking;
landing construction;
cleaning ditches;
constructing ditches;
installation of sediment traps
acquisition and installation of additional drainage structures;
widening road segments;
grading and shaping existing road surface;
constructing additional turnouts;
compaction of road surface;
acquisition, manufacture, and application of rock;
road deactivation;
grass seeding.

This project also includes but is not limited to pre-haul maintenance including:

spot rocking.

SECTION 1 - GENERAL CLAUSES

1.1-1
Clauses in this plan apply to all construction or reconstruction or pre-haul maintenance including landings unless otherwise noted.

1.1-2

Construction or reconstruction or pre-haul maintenance of the following roads is required. All roads shall be constructed or reconstructed or pre-haul maintained on the State's location and in accordance with this Road Plan.

Road	Stations	Type
E-4100	0+00 to 5+62	Construction
E-4100	5+62 to 47+44	Reconstruction
E-4140	MP 0.20 to MP 0.60	Reconstruction
E-4100	MP 2.2 to MP 3.7	Pre-haul maintenance

1.1-3

Construction of the following road is not required. Roads used by the Purchaser shall be constructed on the State's location and in accordance with this Road Plan.

Road	Stations	Type
Spur 1	0+00 to 8+98	Construction
Spur 2	0+00 to 10+62	Construction

1.1-4

If the Purchaser desires a road location or design change, a revised Road Plan shall be submitted to the State for consideration.

1.1-5

On this plan quantities are minimum acceptable values. Additional quantities required by the State because of hidden conditions or Purchaser's choice of construction season or techniques shall be at the Purchaser's expense. Hidden conditions include, but are not limited to: solid subsurface rock, subsurface springs, saturated ground, and unstable soil.

1.1-7

Hauling of forest products or equipment may require a county road hauling permit. Purchaser is responsible for obtaining a permit, and any costs associated with extra maintenance or repair levied by a county.

1.2-1

The construction or reconstruction of any roads specified herein shall not be permitted between September 30 and May 1 unless authority to do so is granted, in writing, by the Contract Administrator.

1.2-2

Purchaser shall not use roads constructed or reconstructed under this Road Plan for hauling, other than timber cut on the right-of-way, without written approval from the Contract Administrator.

1.2-6

Pioneering shall not extend past construction that will be completed during the current construction season. Drainage shall be provided on all uncompleted construction as approved, in writing, by the Contract Administrator.

Clearing and grubbing shall be completed prior to starting excavation and embankment.

Culvert placement in live streams shall precede embankment where culverts are to be placed along natural ground.
Culverts shall be installed in completed subgrade as construction progresses.

Subgrade, ditches, and culvert installations shall be completed and are subject to written approval by the Contract Administrator prior to rock application.

1.3-2

Hauling shall be suspended when wheel track rutting exceeds 6 inches unless Purchaser elects to correct the situation at his/her own expense. Corrective measures and continued operations are subject to written approval by the Contract Administrator.

1.4-3

Reference points (R.P.'s) that are moved or damaged at any time during construction shall be reset in their original locations by the Purchaser. Excavation and embankment shall not proceed on road segments controlled by said R.P.'s until all moved or damaged R.P.'s are reset.

1.5-1

Maintenance on roads listed in Contract Clauses C-50 (Purchaser Road Maintenance and Repair) and C-60 (Designated Road Maintainer) shall be performed in accordance with Forest Access Road Maintenance Specifications.

1.5-3

Snowplowing shall not be permitted unless authorized, in writing, by the Contract Administrator.

SECTION 2 - CLEARING

2.1-1

Fell all vegetative material larger than 2 inches DBH or over 5 feet high between the marked right-of-way boundaries or if not marked in the field, between clearing limits specified on TYPICAL SECTION SHEET.

SECTION 3 - GRUBBING

3-1

All stumps shall be removed that fall between grubbing limits shown on the TYPICAL SECTION SHEET. Those outside the grubbing limits but with undercut roots shall also be removed.

3-2

Grubbing limits are defined as the entire area between the external limits shown on the TYPICAL SECTION SHEET.

3-3

Within waste areas, removal of stumps shall not be required, provided that they are cut flush with the ground.

SECTION 4 - DEBRIS DISPOSAL AND REMOVAL

4.1-1

Right-of-way debris is defined as all nonmerchantable vegetative material larger than one cubic foot in volume within the grubbing limits.

4.1-2

All right-of-way debris disposal shall be completed prior to the application of rock.

4.2.3-1

Right-of-way debris shall be scattered outside the grubbing limits.

4.2.3-2

Right-of-way debris shall not be placed against standing timber.

SECTION 5 - EXCAVATION

5.1-1

Roads shall be constructed or reconstructed in accordance with dimensions shown on the TYPICAL SECTION SHEET.

5.1-3

Road grade and alignment shall conform to the State's marked location. Grade and alignment shall have smooth continuity without abrupt changes in direction. Maximum grades are 18 percent favorable and 12 percent adverse. Minimum radius curve is 60 feet.

5.1-4
Minimum extra widening on the inside of curves shall be:

5 feet extra	80 to 100 foot radius curve
7 feet extra	60 to 80 foot radius curve

5.1-5
Curve widening, where required, shall be added to the inside of curves.

5.1-7
Roads shall be constructed or reconstructed to the dimensions shown on the TYPICAL SECTION SHEET, within the tolerance listed below. Tolerance classes for each road are listed on the TYPICAL SECTION SHEET.

Tolerance Class	A	B	C
Road Width (feet)	+1.5	+1.5	+2.0
Subgrade elevation (feet +/-)	0.5	1.0	2.0
Centerline alignment (feet lt./rt.)	1.0	1.5	3.0

5.1-8
Excavation slopes shall be constructed no steeper than shown on the following table:

Material Type	Excavation Slope Ratio
Common Earth (on side slopes of 55%)	1:1
Common Earth (55% to 70% sideslopes)	¾:1
Common Earth (on slopes over 70%)	½:1
Fractured or loose rock	½:1
Hardpan or solid rock	¼:1

5.1-9
Excavation and embankment slopes shall be constructed to a uniform line and left rough for easier revegetation.

5.1-10
Embankments shall be widened as follows:

Height at Centerline	Subgrade Widening
Less than 6 feet	2 feet
6 feet or over	4 feet

5.1-11
Embankment slopes shall be constructed no steeper than shown on the following table:

Material Type	Embankment Slope Ratio
Common Earth and Rounded Gravel	1½:1
Angular Rock	1¼:1
Sandy Soils	2:1

5.1-12
Organic material shall be excluded from embankment.

5.1-15
The existing subgrade shall be widened to the dimensions shown on the TYPICAL SECTION SHEET.

Road	Stations
E-4100	8+92 to 13+31

5.1-16
Turnout locations noted on this plan are approximate. Locations shall be adjusted to fit with final subgrade alignment and sight distances. Location shall be subject to written approval of the Contract Administrator.

5.1-18
Turnarounds shall be no larger than 30 feet long and 30 feet wide. Location shall be subject to written approval of the Contract Administrator.

5.1.1-1
Waste material shall not be deposited within 50 feet of a cross drain culvert installation.

5.1.1-3
Waste material may be deposited adjacent to the road prism on side slopes up to 45 percent if the waste material is compacted and more than 100 feet away from live streams. On side slopes of 45 percent or more, all excavation shall be end hauled or pushed to designated embankment sites.

5.1.1-5
When constructing landings, waste material shall not be placed on side slopes steeper than 45%.

5.1.1-7
All excess excavated and waste material shall be end hauled to designated waste areas.

End Haul/Waste Material Disposal

Road	Stations	Waste Area Location
E-4100	6+10	0+00 to 2+05
E-4100	12+20	0+00 to 2+05
E-4100	19+43	14+00 to 15+49

5.1.1-8
The amount of material to be contained in a waste area shall be at the discretion of the Contract Administrator.

5.2-1
Road pioneering operations shall not undercut the final cut slope, deposit excavated material outside the clearing limits, or restrict drainage.

5.3-1
All embankment and waste material shall be compacted. The minimum acceptable compaction is achieved by placing embankments in 2 foot or shallower lifts and routing excavation equipment over entire width of the lifts.

5.4-1
Silt-bearing runoff shall not be permitted to go into streams.

5.4-2
On the following road, accomplish sediment removal through silt traps as approved by the Contract Administrator.

Road	Stations-(Quantity)
E-4140	MP 0.20-(1), MP 0.36-(1), MP 0.43-(2), MP 0.46-(2), MP 0.59-(2), MP 0.60-(1)

5.4-3.1
On the following roads, Purchaser shall furnish and evenly spread the seed mixture listed below on all exposed soil inside the grubbing limits at a rate of 40 pounds per acre. The date of application is subject to approval by the Contract Administrator.

Mixture Percent by Weight	Minimum Percent Germination
50% Fescue, Red	90% Germination
25% Ryegrass, Perennial	90% Germination
15% Bentgrass	85% Germination
10% Clover, White and White Dutch (inoculated)	90% Germination

Weed seed shall not exceed 0.5% by weight.

Seed shall be furnished in standard containers on which the following shall be shown:
1. Common name of seed
2. Net weight
3. Percent of purity
4. Percentage of germination
5. Percentage of weed seed and inert material

5.4.3-1 continued

Required seed not spread by the termination of this contract shall become property of the State.

Road	Stations	Seed Quantity (lbs)
Spur 1	0+00 to 8+98	20
Spur 2	0+00 to 10+62	20
E-4100	0+00 to 47+44	90

5.5-4

Constructed or reconstructed subgrades shall be compacted full width except ditch prior to rock application. Compaction shall be by a smooth-drum vibratory roller weighing at least 14,000 pounds. Five complete passes shall be made at a maximum operating speed of 3 mph.

5.5-5

Finished subgrade shall be crowned as shown on the TYPICAL SECTION SHEET, and shall be uniform, firm, rut-free, and shaped to ensure surface runoff in an even, unconcentrated manner.

SECTION 6 - DRAINAGE

6.2.1-1

Purchaser shall furnish, install, and maintain corrugated polyethylene pipe (AASHTO specification No. M-294 Type S) and on culverts over 24 inches, aluminized culverts (meeting ASTM A 819, AASHTO M-274 aluminized steel Type 2 and AASHTO M-36 specifications) as designated on the CULVERT LIST. Culvert and flume lengths shall be varied to fit as-built conditions subject to written approval by the Contract Administrator.

6.2.1-2

Annular corrugated bands and culvert ends shall be used on metal culverts. On culverts over 24 inches, bands shall have a minimum width of 24 inches. Manufacturer's approved connectors shall be used for corrugated polyethylene pipe.

6.2.1-5

On required roads: culverts, downspouts, flumes, bands, and gaskets as listed on the CULVERT LIST which are not installed shall become property of the State.

6.2.1-6

Metal, concrete, or plastic culverts and bands removed from the road bed shall be removed from State land prior to termination of this contract.

6.2.1-7

On the following road, installation of culverts shall be in accordance with Hydraulics Project Approval and CULVERT AND DRAINAGE SPECIFICATION DETAIL.

Road	Stations
E-4100	6+10, 12+20 & 19+43

6.2.2.1-1

Culvert, downspout, flume, and energy dissipator installation shall be in accordance with CULVERT AND DRAINAGE SPECIFICATION DETAIL and the Corrugated Polyethylene Pipe Association "Recommended Installation Practices for Corrugated Polyethylene Pipe and Fittings."

6.2.2.1-2

Purchaser shall provide rubberized gaskets for all culverts with a vertical rise greater than 42 inches.

6.2.2.1-4

On the following road, puncheon replacements shall be done in accordance with the TYPICAL PUNCHEON CULVERT REPLACEMENT DETAIL.

Road	Stations
E-4100	6+10

6.2.2.3-1

Cross drains and surface culverts on road grades in excess of 3% shall be skewed at least 30 degrees from perpendicular to the road centerline , except that cross drain culverts at the low points of dips in roads shall not be skewed.

6.2.2.3-2

Cross drain culverts shall be installed at a slope steeper than the incoming ditch grade, but not less than 3% nor more than 10%.

6.2.2.4-1

Installations of culverts 30 inches in diameter and over shall be subject to written approval by the Contract Administrator prior to making backfill.

6.2.2.5-1

Drainage structure outfalls shall not terminate directly on unprotected soil that will erode. Downspouts, flumes, and energy dissipators shall be installed to prevent erosion.

6.2.2.5-2

Downspouts and flumes longer than 10 feet shall be staked on both sides at maximum intervals of 7 feet with 6 foot heavy duty steel posts, and fastened securely to the posts with No. 10 galvanized smooth wire or ½ inch bolts in accordance with CULVERT AND DRAINAGE SPECIFICATIONS DETAIL.

6.3-1

Ditches shall be constructed concurrently with construction of the subgrade. Ditches shall drain to culverts, ditchouts, and natural drainages.

6.3-2

On the following road, reshaping and cleaning the ditchline, culvert headwalls, and catch basins and outlets shall be completed prior to timber haul and shall be done in accordance with the TYPICAL SECTION SHEET and CULVERT AND DRAINAGE SPECIFICATION DETAIL.

Road	Stations
E-4140	MP 0.20 to MP 0.60

6.4-1

Catch basins shall be constructed to resist erosion in accordance with CULVERT AND DRAINAGE SPECIFICATION DETAIL. Minimum dimensions: two feet wide and four feet long with backslopes consistent with Clause 5.1-8: Excavation Slopes.

6.5-1

Headwalls shall be constructed in accordance with CULVERT AND DRAINAGE SPECIFICATION DETAIL at all cross drain culverts.

SECTION 7 - ROCK

7.1-1

Rock for construction and/or reconstruction under this contract may be obtained from a source on State land as listed below at no charge to the Purchaser. Development and use shall be in accordance with a written "Development Plan" prepared by the State. A copy of the written plan is available upon request from the Pacific Cascade Region office. Upon completion of operations, the rock source shall be left in the condition specified in said plan, subject to approval by the Contract Administrator. Use of material from any other source must have prior written approval from the Contract Administrator. If other operators are using or desire to use this rock source, a joint operating plan shall be developed. All parties shall follow this plan.

Source	Location
E-4710 Quarry	Sec. 4, T9N, R4W, W.M.

7.2.1.1-7
4 INCH MINUS ROCK

% equal to, or smaller in one dimension than the specified size	100%
% passing U.S. #40 sieve	16% Max.
% passing U.S. #200 sieve	5% Max.

All percentages are by weight.

7.2.1.1-10
8 INCH PLUS ROCK

% equal to, or larger in one dimension than the specified size	100%
% passing U.S. #40 sieve	16% Max.
% passing U.S. #200 sieve	5% Max.

All percentages are by weight.

7.2.1.1-12
Landing rock shall be no coarser than 6 INCH MINUS.

7.2.1.2-2
PIT RUN rock shall contain no more than 5 percent by weight of vegetative debris, dirt, or trash.

7.2.3-1
Measurement of the rock shall be on a cubic yard truck measure basis. Each truck box shall be measured by the Contract Administrator prior to rock hauling. The Contract Administrator shall periodically require that a load be flattened off and its volume calculated. An average of such volumes for each truck shall be used to tally the volume to be hauled. The Purchaser shall provide and maintain load tally sheets for each truck and shall give them to the Contract Administrator upon request.

7.2.4-1
Rock drilling and shooting shall meet the following specifications:

a. Oversize material remaining in the rock source at the conclusion of the timber sale shall not exceed 5 percent of the total volume mined for the sale.

b. Oversize material is defined as rock fragments larger than two feet in any dimension.

c. The Purchaser shall submit an informational drilling and shooting plan to the Contract Administrator 10 working days prior to any drilling. (Form #M-126PAC).

7.4.2-1
Apply at least the minimum rock quantity as shown on the ROCK LIST.

7.4.2-6
A grader shall be used to shape the subgrade prior to subgrade compaction.

7.4.2-9
Turnarounds, turnouts, and curve widening shall have rock applied to the same depth and specifications as the traveled way.

7.4.2-10
Each lift of rock shall be crowned as shown on TYPICAL SECTION SHEET, and shall be uniform, firm, rut-free, and shaped to ensure surface runoff in an even, unconcentrated manner.

7.4.2-11
Purchaser shall spot patch as directed by the Contract Administrator in accordance with quantities shown on

ROCK LIST.

Road	Stations
E-4100	MP 2.2 TO MP 3.7

7.4.3-2

Rock shall be spread and compacted full width in lifts not to exceed 12 inches uncompacted depth. Compaction shall be by smooth drum vibratory roller weighing at least 14,000 pounds. Five complete passes at a maximum speed of 3 mph shall be made on each lift.

SECTION 9 - ROAD AND LANDING DEACTIVATION

9.1-1

The following road shall be deactivated by the Purchaser prior to timber haul.

Road	Stations
E-4160	0+00 to 16+93

9.1-2

Deactivation shall consist of:

constructing non-drivable water bars in conformance with the attached NON-DRIVABLE WATER BAR DETAIL as marked in the field; skewing water bars at least 20 degrees from perpendicular to the road centerline on roads in excess of 3% grade;
keying water bars into ditchline;
construction of tank trap barriers in conformance with the attached TANK TRAP DETAIL.

9.2-1

Purchaser shall reduce or relocate landing debris, in a manner approved, in writing, by the Contract Administrator, to avoid landing failures and potential debris slides.

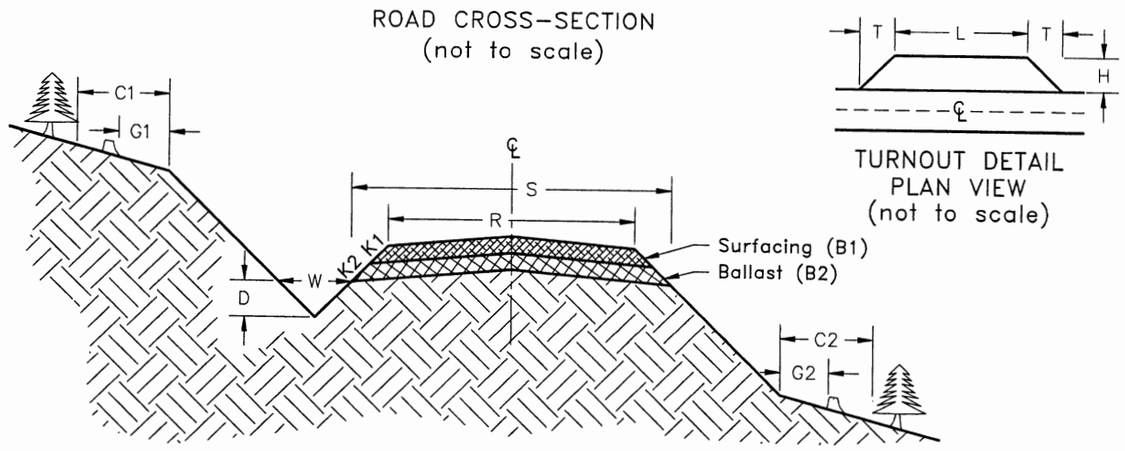
9.2-2

Purchaser shall provide for drainage of the landing surface as approved, in writing, by the Contract Administrator.

9.2-3

Landing embankments shall be sloped to original construction specifications.

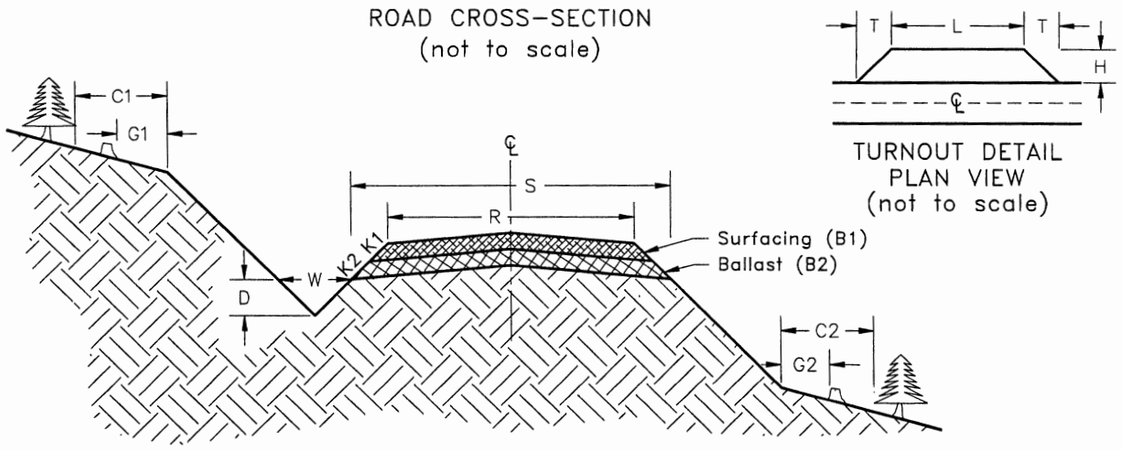
TYPICAL SECTION SHEET



Road Number	From Station	To Station	Tolerance Class	Subgrade Width	Road Width	Ditch		Crown in. @ CL	Grubbing Limits		Clearing Limits	
						Width	Depth					
				S	R	W	D		G1	G2	C1	C2
*Spur 1	0+00	8+98	C	16'	12'	3'	1'	4"	5'	5'	10'	10'
*Spur 2	0+00	10+62	C	16'	12'	3'	1'	4"	5'	5'	10'	10'
E-4100	0+00	33+86	C	16'	12'	3'	1'	4"	5'	5'	Tags	Tags
E-4100	33+86	47+44	C	16'	12'	3'	1'	4"	5'	5'	10'	10'
E-4140	MP 0.20.	MP 0.60	C	-	-	3'	1'	-	-	-	-	-

*Optional Construction

ROCK LIST



BALLAST

Road Number	From Station	To Station	Rock Slope	Compacted Rock Depth	C.Y./ Station	# of Stations	C.Y. Subtotal	Rock Source	Turnout Length	Turnout Width	Turnout Taper
			K2	B2					L	H	T
				4 INCH MINUS							
*Spur 1	0+00	8+98	1 ½:1	14"	75	8.98	674	E-4710 Quarry			
	*Landing (1)		-	-	-	-	50				
*Spur 2	0+00	10+62	1 ½:1	14"	75	10.62	797				
	*Landing (1)		---	----	---	---	50				
E-4100	0+00	5+62	1 ½:1	15"	81	5.62	455				
E-4100	5+62	47+44	1 ½:1	12"	63	41.82	2,635				
	Landings (2)		-	-	-	-	100		-	-	-
	Turnouts (3)		-	15"	81	3.00	243		50'	10'	50'
E-4140	Turnout (1)		-	15"	81	1.00	81		50'	10'	50'
					8 INCH PLUS						
E-4100	Culvert Installations						30				
					PIT RUN						
E-4100	Culvert Installations						19				

*Optional Construction

Required 4 INCH MINUS TOTAL 3,514 Cubic Yards
Optional 4 INCH MINUS TOTAL 1,571 Cubic Yards
8 INCH MINUS TOTAL 30 Cubic Yards
PIT RUN TOTAL 19 Cubic Yards

SURFACE

Road Number	From Station	To Station	Rock Slope	Compacted Rock Depth	C.Y./ Station	# of Stations	C.Y. Total	Rock Source
			K1	B1				
				4 INCH MINUS				
E-4100	Spot rock MP 2.2 to MP 3.7						300	E-4710 Quarry
E-4140	Culvert Installations MP 0.20 to MP 0.60						100	E-4710 Quarry

4 INCH MINUS TOTAL 400 Cubic Yards

LONG JUMP

ROAD PLAN OVERVIEW MAP

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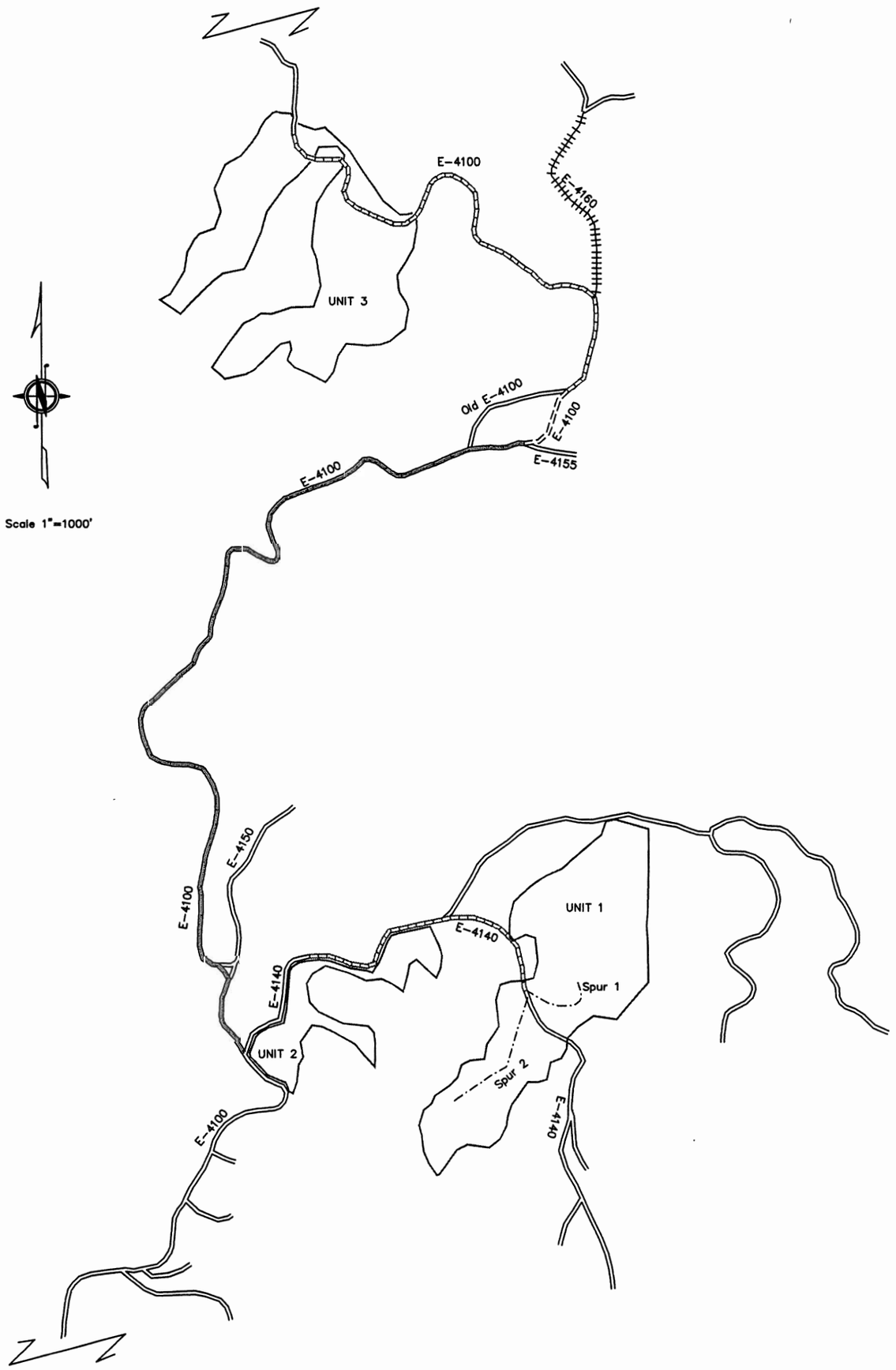
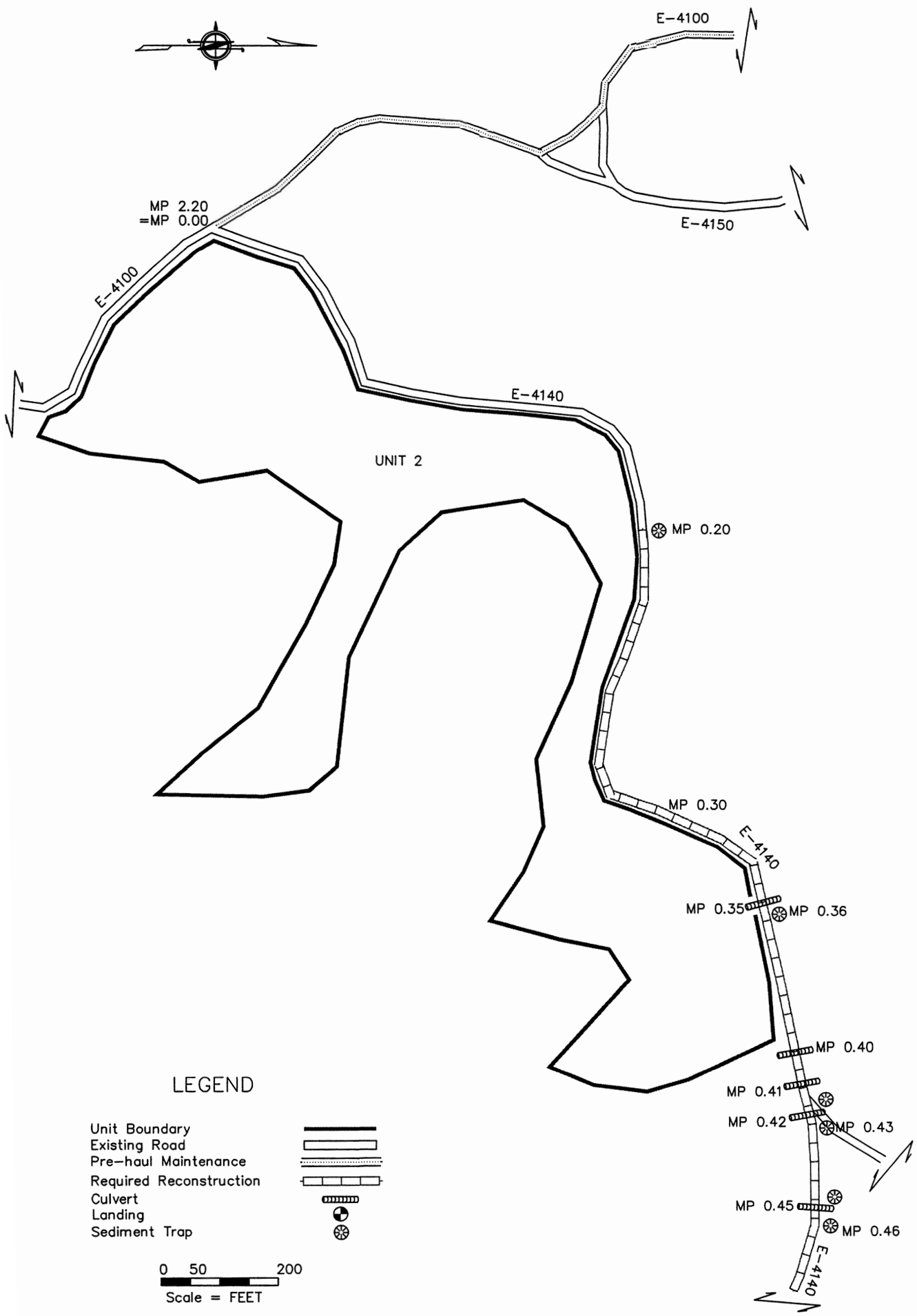
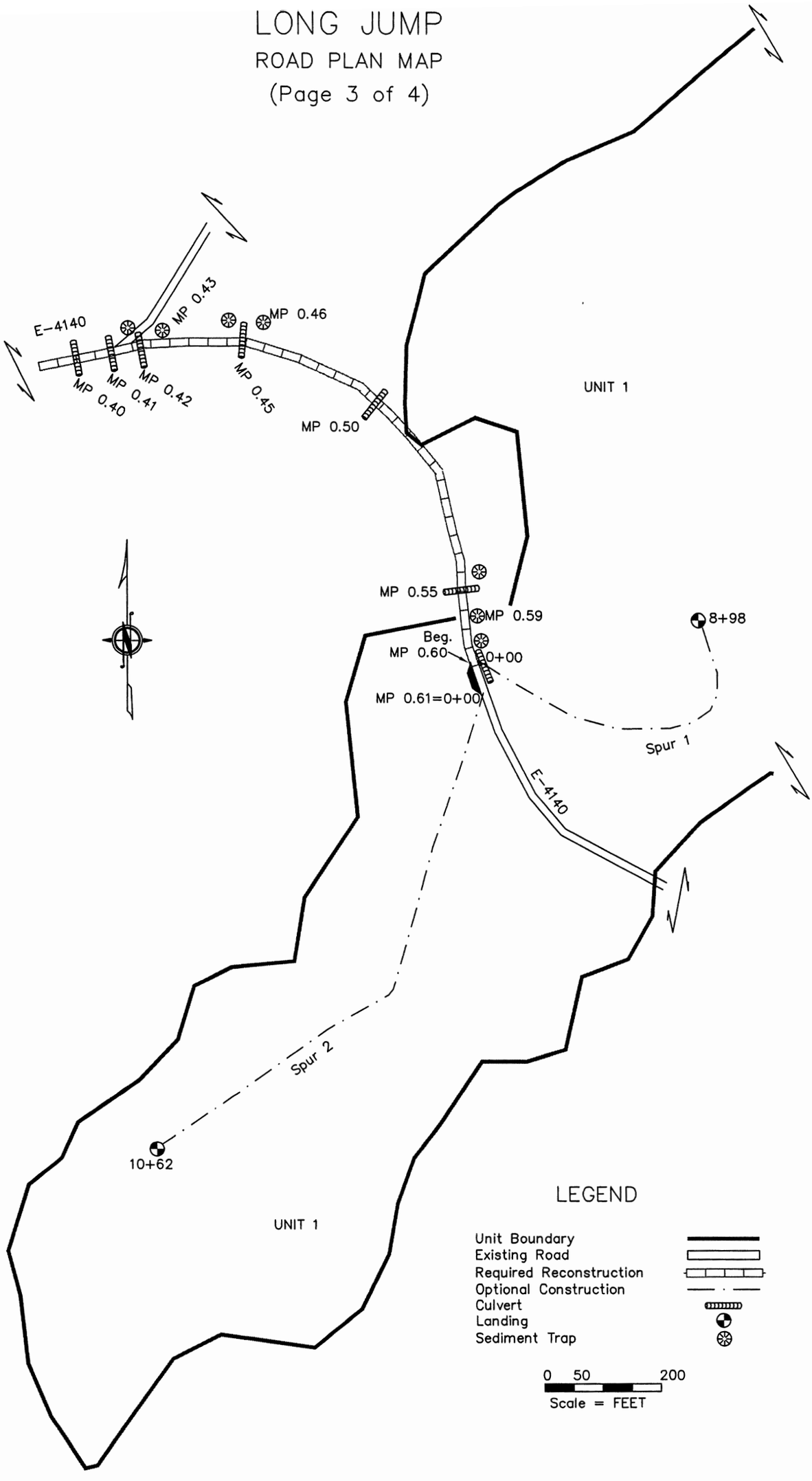


LONG JUMP
ROAD PLAN MAP
(Page 2 of 4)



LONG JUMP
ROAD PLAN MAP
(Page 3 of 4)



LONG JUMP
ROAD PLAN MAP
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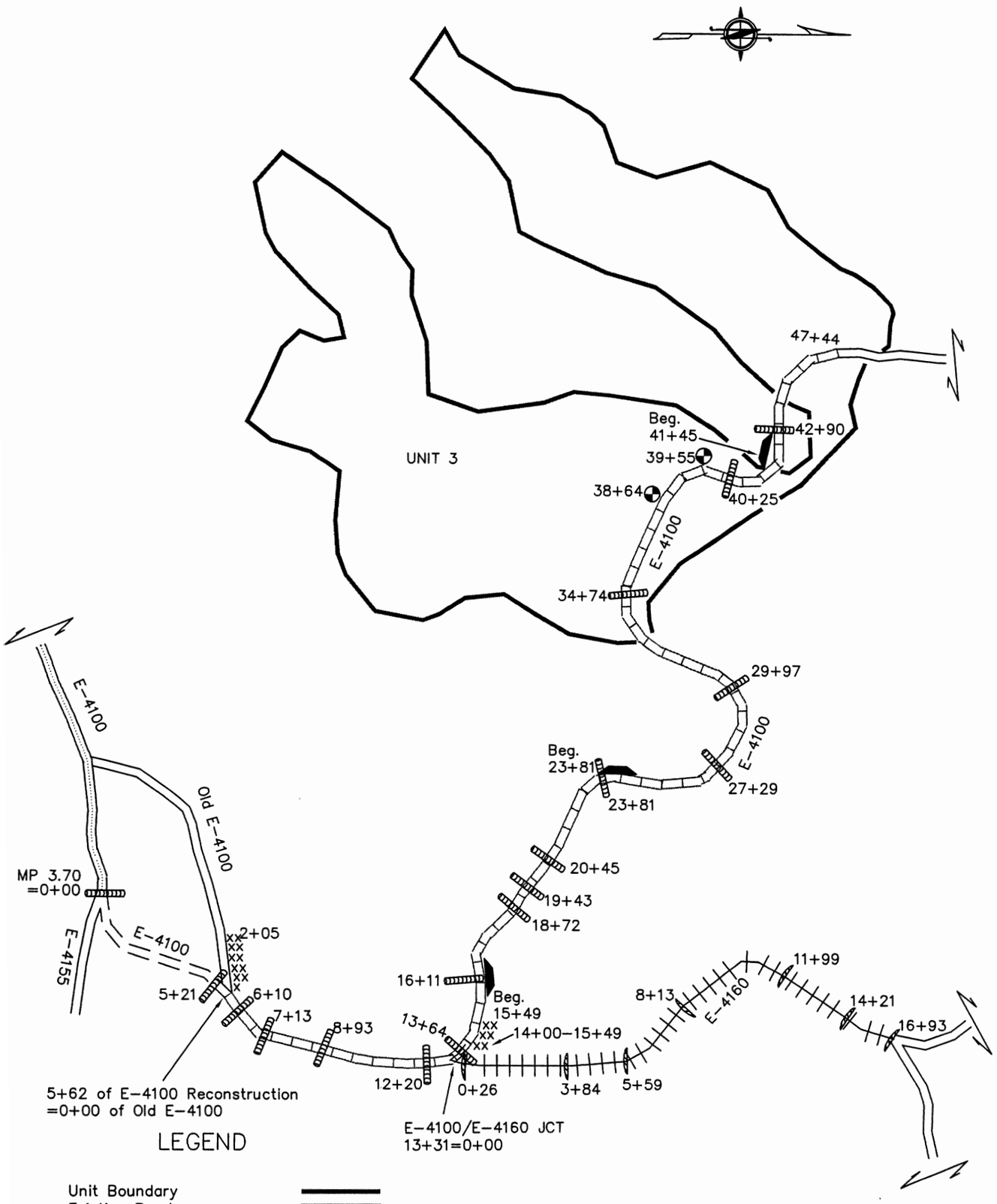
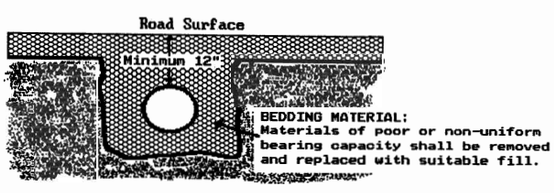


CULVERT LIST

Road Number	Location	Culvert Dia.	Culvert Gauge	Length (ft) Culvert	Length (ft) Downspt	Length (ft) Flume	Riprap (C.Y.) Inlet	Riprap (C.Y.) Outlet	Riprap (C.Y.) Type	Backfill Material	Placement Method	Const. Staked	Remarks
			If Steel										
Spur 1	0+00	18"	-	50	-	-	½	½	PR	NT	-	-	
E-4140	MP 0.20	-	-	-	-	-	-	-	-	-	-	-	Install (1) 2'Dx 2'W x 4'L silt trap
	MP 0.35	18"	-	40	-	-	½	½	PR	NT	-	-	
	MP 0.36	-	-	-	-	-	-	-	-	-	-	-	Install (1) 2'Dx 2'W x 4'L silt trap
	MP 0.40	18"	-	30	-	-	½	½	PR	NT	-	-	
	MP 0.41	18"	-	36	-	-	½	½	PR	NT	-	-	
	MP 0.42	18"	-	30	-	-	½	½	PR	NT	-	-	
	MP 0.43	-	-	-	-	-	-	-	-	-	-	-	Install (2) 2'Dx 2'W x 4'L silt traps
	MP 0.45	18"	-	30	-	-	½	½	PR	NT	-	-	
	MP 0.46	-	-	-	-	-	-	-	-	-	-	-	Install (2) 2'Dx 2'W x 4'L silt traps
	MP 0.50	18"	-	34	-	-	½	½	PR	NT	-	-	
	MP 0.59	-	-	-	-	-	-	-	-	-	-	-	Install (2) 2'Dx 2'W x 4'L silt traps
	MP 0.60	18"	-	30	-	-	½	½	PR	NT	-	-	Install (1) 2'Dx 2'W x 4'L silt trap
E-4100	0+00	18"	-	40	-	-	½	½	PR	NT	-	-	
	5+21	18"	-	30	-	-	½	½	PR	NT	-	-	
	6+10	42"	12	50	-	-	5	5	8"	NT	-	-	
	7+13	18"	-	45	-	-	½	½	PR	NT	-	-	
	8+93	18"	-	50	-	-	½	½	PR	NT	-	-	
	12+20	48"	12	50	-	-	5	5	8"	NT	-	-	
	13+64	18"	-	38	-	-	½	½	PR	NT	-	-	
	16+11	18"	-	30	-	-	½	½	PR	NT	-	-	
	18+72	18"	-	36	-	-	½	½	PR	NT	-	-	
	19+43	48"	12	55	-	-	5	5	8"	NT	-	-	
	20+45	18"	-	43	-	-	½	½	PR	NT	-	-	
	23+81	18"	-	38	-	-	½	½	PR	NT	-	-	
	27+29	18"	-	30	-	-	½	½	PR	NT	-	-	
	29+97	18"	-	32	20	-	½	½	PR	NT	-	-	
	34+74	18"	-	30	-	-	½	½	PR	NT	-	-	
	40+25	18"	-	30	-	-	½	½	PR	NT	-	-	
	42+90	18"	-	30	-	-	½	½	PR	NT	-	-	

CULVERT BACKFILL AND BASE PREPARATION
(For culverts less than 36")

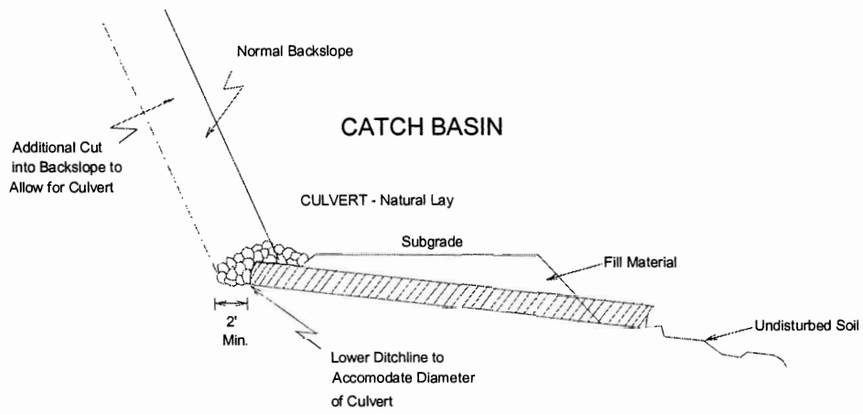


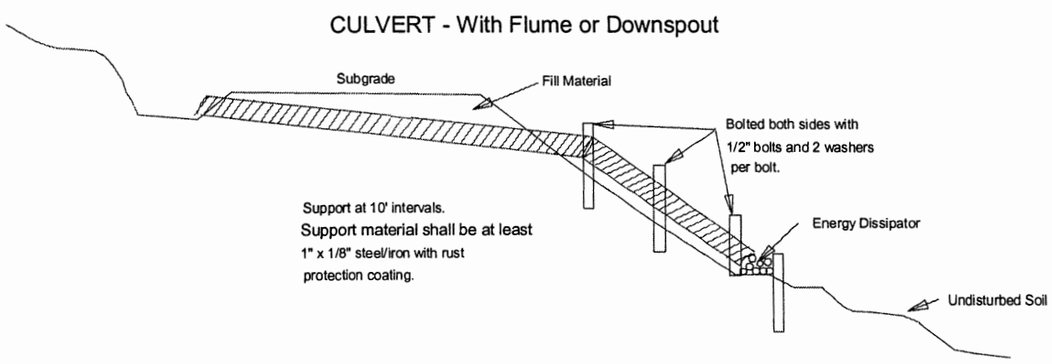
Key:

PR - Pit Run Rock
NT - Native (bank run)
8" - 8 Inch Plus Rock
HL - Heavy Loose Riprap
LL - Light Loose Riprap
Flume - Half round pipe
Downspout - Full round pipe

CULVERT AND DRAINAGE SPECIFICATION DETAIL

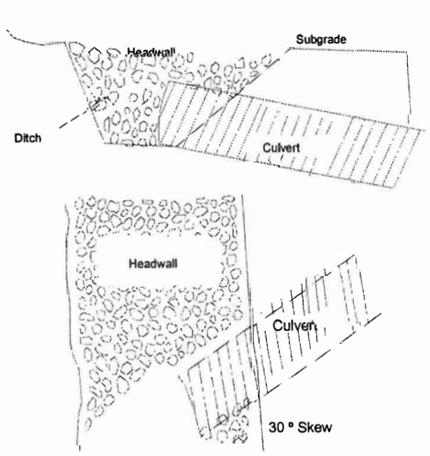
(Page 1 of 2)





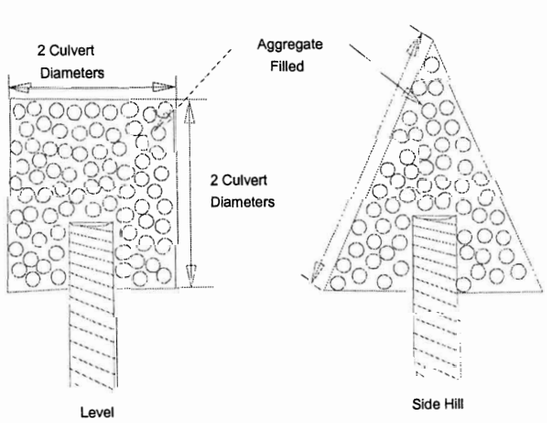
Proper preparation of foundation and placement of bedding material shall precede the installation of all culvert pipe. This includes necessary leveling of the native trench bottom and compaction of required bedding material to form a uniform dense unyielding base. The backfill material shall be placed so that the pipe is uniformly supported along the barrel.

HEADWALLS



Headwalls to be constructed of material that will resist erosion.

ENERGY



Dissipator Specifications:
Depth: 1 culvert diameter
Aggregate: as specified in the CULVERT LIST.

CULVERT AND DRAINAGE SPECIFICATION DETAIL

(Page 2 of 2)

POLYETHYLENE PIPE INSTALLATION

INSTALLATION REQUIREMENTS:

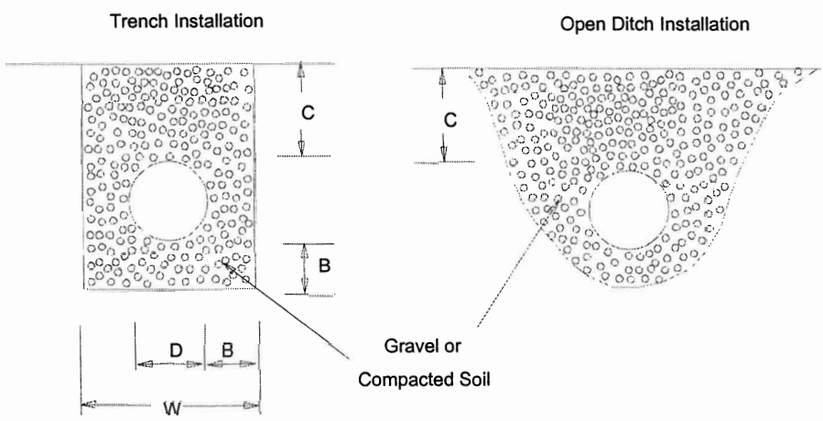
1. Crushed stone, gravel, or compacted soil backfill material shall be used as the bedding and envelope material around the culvert. The aggregate size shall not exceed 1/6 pipe diameter or 4" diameter, whichever is smaller.

2. The corrugated pipe shall be laid on grade, on a layer of bedding material as shown for the two types of installations. If native soil is used as the bedding and backfill material, it shall be well compacted in six inch layers under the haunches, around the sides and above the pipe to the recommended minimum height of cover.

3. Either crushed aggregate or flexible (asphalt) pavement may be laid as part of the minimum cover requirements.

4. Site conditions and availability of bedding materials often dictate the type of installation method used.

5. The load bearing capability of flexible conduits is dependent on the type of backfill material used and the degree of compaction achieved. Crushed stone and gravel backfill materials typically reach a compaction level of 90-95% AASHTO standard density without compaction. When native soils are used as backfill material, a compaction level of 85% is required. This minimum compaction can be achieved by either hand or mechanical tamping.



MINIMUM DIMENSIONS
Trench or Open Ditch Installation

Nominal Diameter	Minimum Thickness	Minimum Cover	Min. Trench Width
D	B	C	W
18"	6"	12"	36"
24"	6"	12"	42"
30"	6"	12"	48"
36"	6"	12"	54"

STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

FOREST ACCESS ROAD
MAINTENANCE SPECIFICATIONS

1. CONSTRUCTION AND RECONSTRUCTION (Prior to acceptance to the contract or acceptance on a timber sale).

A. Cuts and Fills
   1. Maintain slope lines as constructed. Remove slides from the ditches and roadway. Replace fills to 1½:1 slopes with selected material or as directed. Remove overhanging material from the cut slopes.
   2. Material from slides or other sources requiring removal shall not be deposited in streams or at locations where it will erode into streams or water courses.
   3. Undesirable slide materials and debris shall not be mixed into the surface material.

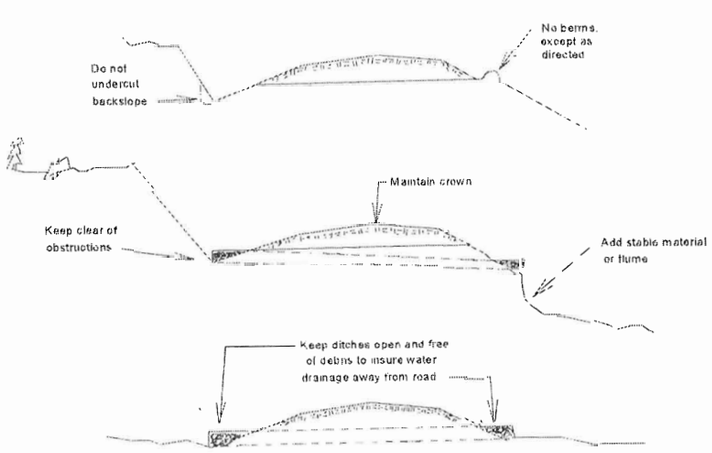
B. Surface
   1. Grade and shape the road surface, turnouts, and shoulders to the original crown, inslope or outslope as directed to provide suitable traveled surface and surface water runoff in an even, unconcentrated manner.
   2. Blading must not undercut the backslope at the bottom of the ditchline or cut geotextile at centerline.
   3. Watering may be required to control dust and to retain fine surface rock.
   4. Desirable surface material shall not be bladed off the roadway.
   5. Replace surface material lost or worn away.
   6. Remove berms except as directed by the State.
   7. Barrel spread soft spots to prevent degradation of geotextile.

C. Drainage
   1. Keep ditches and drainage channels at outlets and inlets of culverts clear of obstructions and functioning as intended.
   2. Inspect and clean culverts at least monthly, with additional inspections during storms and periods of high runoff. This must be done even during periods of inactivity.
   3. Add stable material at the outlet end of the culvert as needed to stabilize the stream bed.
   4. Headwalls: maintain to the road shoulder level with material that will resist erosion.
   5. Keep silt bearing surface runoff from getting into live streams.

D. Structures
   Repair bridges, culverts, cattleguards, fences, and other road structures to the condition required by the construction specifications.

E. Termination of Use or End of Season
   Do maintenance work to minimize damage from the elements such as blading to insure correct runoff, ditch, and culvert cleaning and water bars.

F. Debris
   Remove fallen timber, limbs, and stumps from the slopes or roadway.



LIVE STREAM CULVERT REMOVAL PROCEDURE

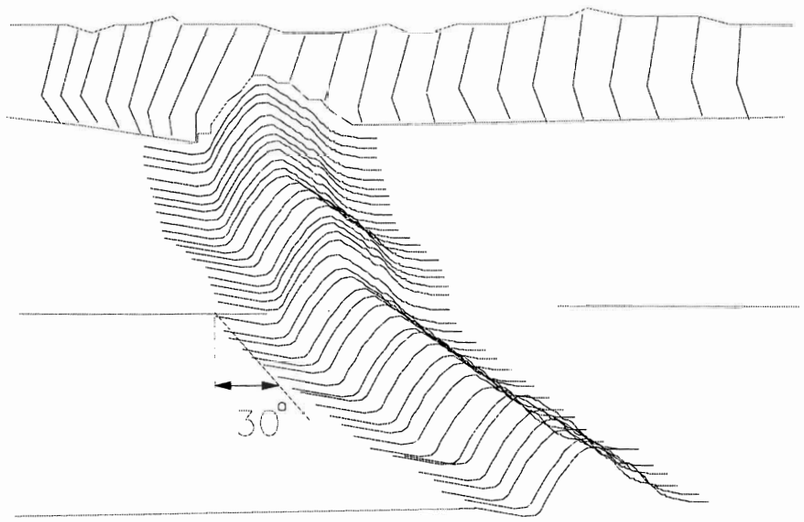
Order of work is as follows, deviations shall be approved, in writing, by the Contract Administrator.

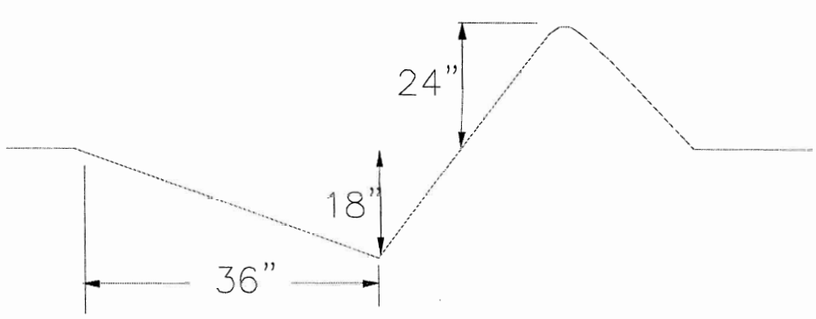
1) Purchaser shall notify the State of intent to start project, and a pre-work conference shall be held before move in of equipment. State will designate a representative that will remain on site at all times when work is being performed in creek channel.
2) Assemble the items on the "Materials List" onsite before proceeding.
3) Remove 95% of fill (see FILL REMOVAL DETAIL) and end haul to station 0+00 to 2+05 of Old E-4100 and/or station14+00 to 15+49 on the E-4100 road.
4) Set up pumps (2 required, with one as backup).
5) Dam up stream with sandbags and line floor of dam with plastic (to prevent sub-surface water flow), place clean rock on plastic to hold in place, and key leading edge of plastic into channel bottom - see SETTLING POND AND PUMP DETAIL. Build a settling pond at culvert outlet. Fill may need to be removed before the settling pond installation due to space limitations. Pump clean water at catch basin around work site and back into stream. Dirty water shall be pumped away from site and onto forest floor a minimum of 200 feet from live streams.
6) Remove remainder of fill and culvert.

Materials List:

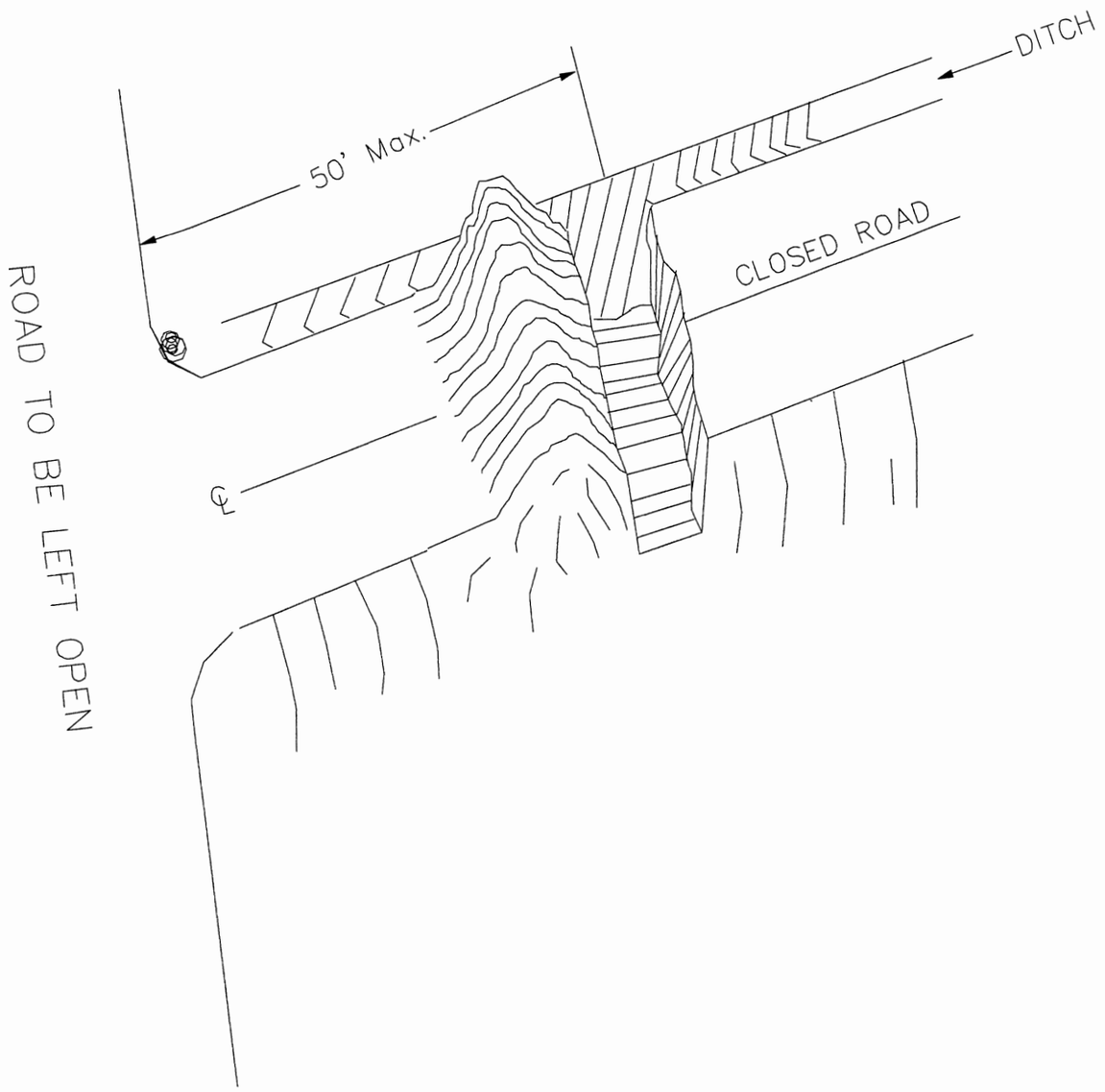
- 2 pumps, (one as a backup) The clean water pump (dam at culvert catch basin) shall have a minimum capacity of 600 gallons per minute. The dirty water pump (settling pond) and the backup pump shall each have a minimum capacity of 600 gpm. Culvert removal should not start during rain or threat of rain;
- 1,000 square feet plastic sheet;
- 100 feet of silt fence and stakes;
- 5 bales of straw.

NON-DRIVABLE WATER BAR DETAILS

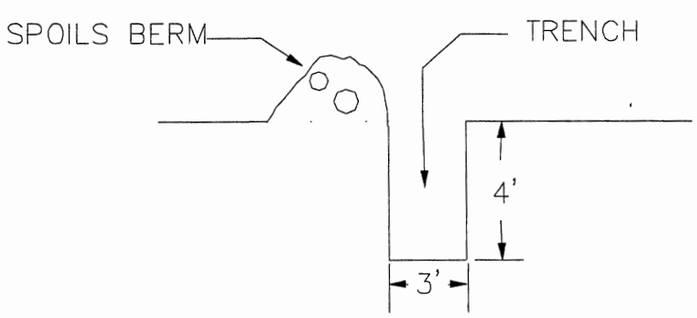




TANK TRAP DETAIL

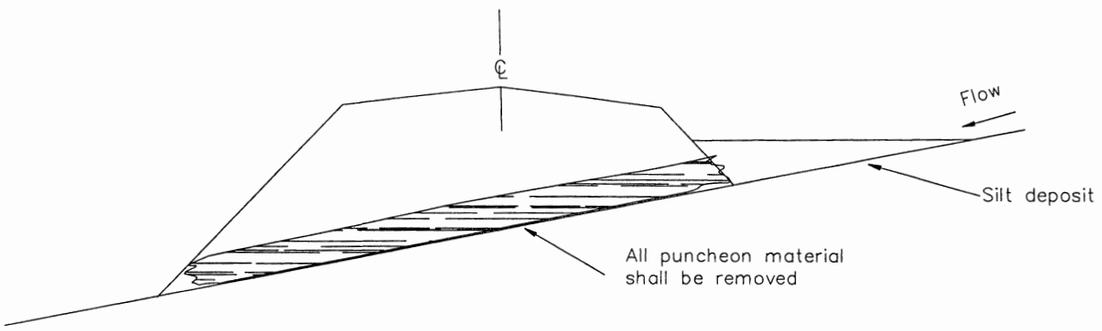


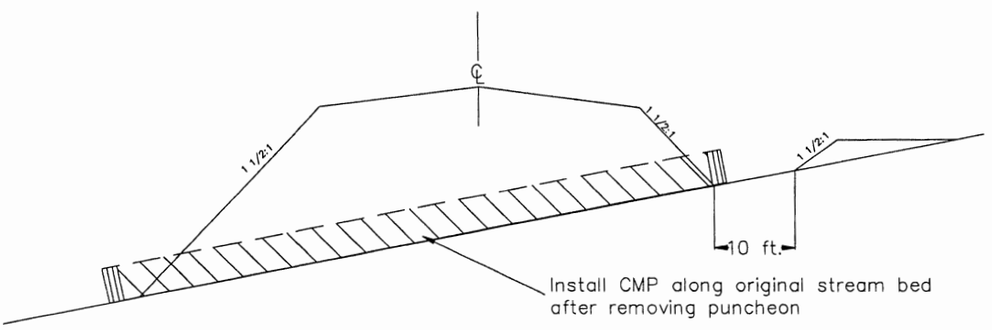
CROSS SECTION AT CENTERLINE



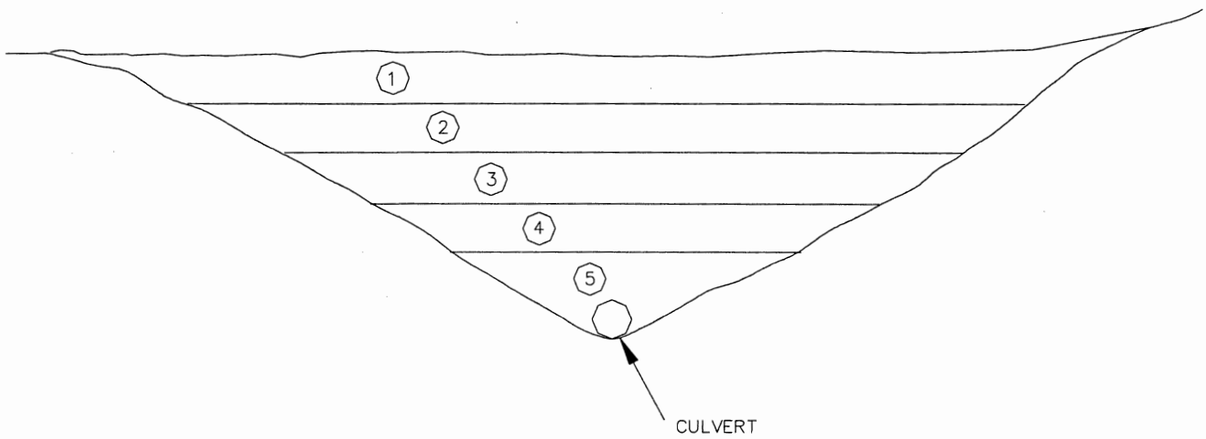
TYPICAL PUNCHEON CULVERT REPLACEMENT DETAIL

No Scale



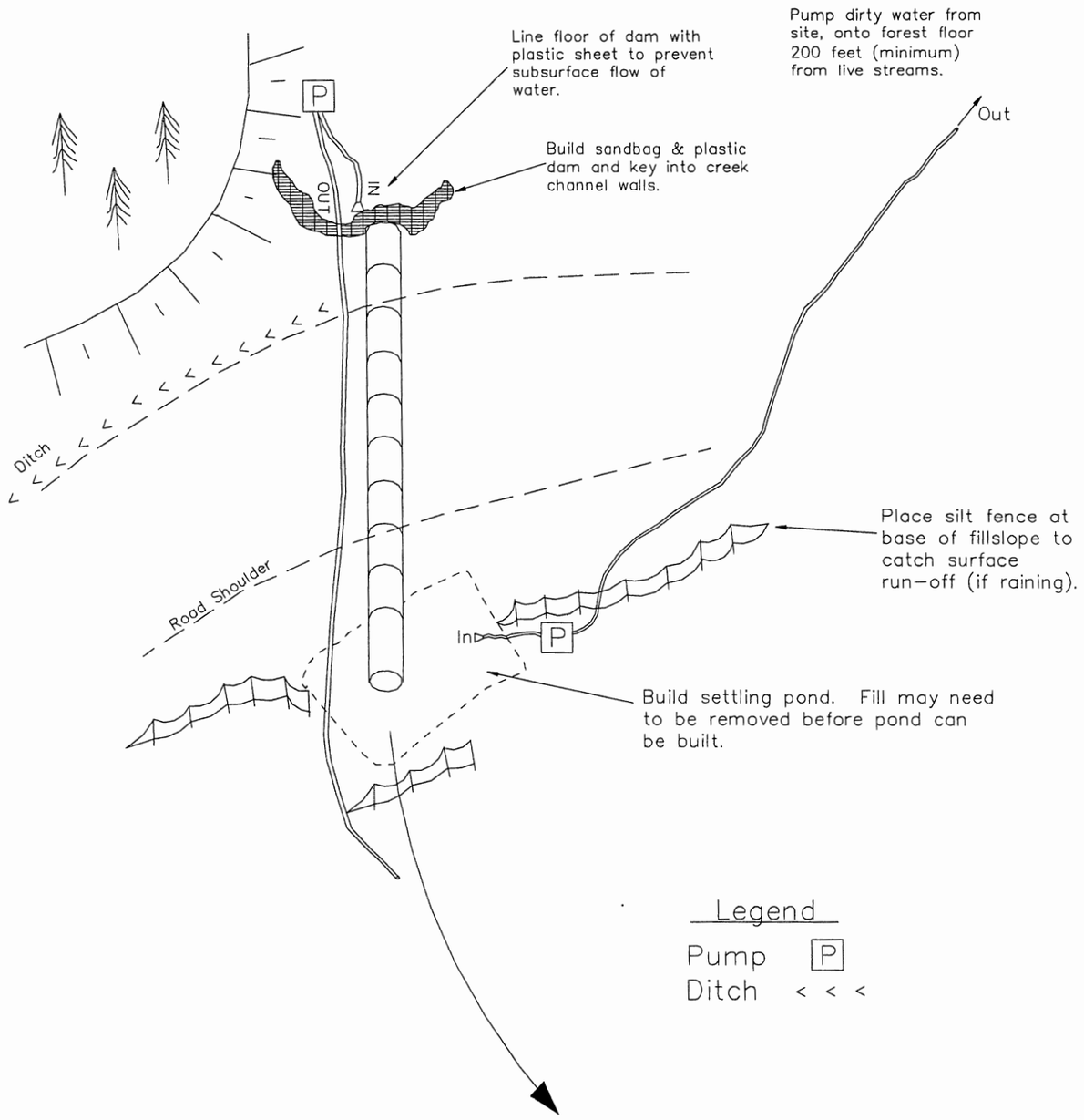


FILL REMOVAL DETAIL



- Remove fill in layers not to exceed 3 feet.
- Channel slopes shall be according to Section 6 – DRAINAGE and the Live Stream Culvert Removal Procedure

SETTLING POND AND PUMP DETAIL



DEPARTMENT OF NATURAL RESOURCES - CENTRAL REGION

FORM 9-87(Rev. 12-02)

SUMMARY - Road Development Costs

DISTRICT: St. Helens

SALE/PROJECT NAME: Long Jump CONTRACT NUMBER: N/A

LEGAL DESCRIPTION: Section 3, T9N, R4W & Section 34, T10N, R4W W.M.

ROAD NUMBER:	E-4100 Recon.	E-4100 New Constr.	Unit 1 Spurs 1 & 2
ROAD STANDARD:	Mainline (12' R.S.)	Mainline (12' R.S.)	Spur road (12' R.S.)
NUMBER OF STATIONS:	41.82	5.62	19.20
SIDESLOPE:	0--20%	0--20%	0--20%
CLEARING AND GRUBBING:	$557	$225	$627
EXCAVATION AND FILL:	$1,227	$495	$1,294
ROCK TOTALS (Cu. Yds.):			
Ballast: 5305	$26,911	$3,628	$12,167
Surface: 100	$0	$0	$0
Riprap: 49	$194	$0	$0
CULVERTS AND FLUMES:	$12,232	$850	$600
DEACTIVATION:	$424	$0	$0
GENERAL EXPENSES:	$3,739	$572	$1,469
MOBILIZATION:	$623	$623	$623
TOTAL COSTS:	$45,907	$6,391	$16,779
COST PER STATION:	$1,098	$1,137	$874

NOTE: This appraisal has no allowance for profit and risk.

TOTAL (All Roads) = $73,544

SALE VOLUME MBF = 3,500

TOTAL COST PER MBF = $21.01

Plans to be furnished by:

Plan only: STATE

Plan-profile:

Compiled by: Greg Johnson Date: 05/18/04

Checked by: _____ Date: _____

Region Engineer: _____ Date: _____

Div of Engr.: _____ Date: _____

REMARKS: _____

_____

DEPARTMENT OF NATURAL RESOURCES - CENTRAL REGION

FORM 9-87(Rev. 12-02)

SUMMARY - Road Development Costs

DISTRICT: St. Helens

SALE/PROJECT NAME: Long Jump CONTRACT NUMBER: N/A

LEGAL DESCRIPTION: Section 3, T9N, R4W & Section 34, T10N, R4W W.M.

ROAD NUMBER:		E-4140 Recon.	0	0
ROAD STANDARD:		Spur road (12' R.S.)	0	0
NUMBER OF STATIONS:		15.84	0.00	0.00
SIDESLOPE:		0--20%	0	0
CLEARING AND GRUBBING:		$0	$0	$0
EXCAVATION AND FILL:		$301	$0	$0
ROCK TOTALS (Cu. Yds.):				
Ballast:	0	$0	$0	$0
Surface:	100	$349	$0	$0
Riprap:	0	$0	$0	$0
CULVERTS AND FLUMES:		$2,783	$0	$0
STRUCTURES:		$0	$0	$0
GENERAL EXPENSES:		$412	$0	$0
MOBILIZATION:		$623	$0	$0
TOTAL COSTS:		$4,468	$0	$0
COST PER STATION:		$282	#DIV/0!	#DIV/0!

NOTE: This appraisal has no allowance for profit and risk.

TOTAL (All Roads) = $4,468

SALE VOLUME MBF =

TOTAL COST PER MBF = #DIV/0!

Plans to be furnished by:

Plan only: STATE

Plan-profile:

Compiled by: Greg Johnson Date: 05/18/04

Checked by: _____ Date: _____

Region Engineer: _____ Date: _____

Div of Engr.: _____ Date: _____

REMARKS: _____

PACIFIC CASCADE REGION - ROAD COST ESTIMATE

SALE NAME: Long Jump

CONTRACT NUMBER: N/A

I. CLEARING AND GRUBBING: RECONSTRUCTION =1/3rd New Construction Cost

Flat Rate -	% Side Slope	MBF/ac	Disposal Factor	Production Factor	Cost/ Station	Width Factor	Total Stations	Sub Total
E-4100 Recon.			1.00	1.00	$13	1.00	41.82	$557
								$0
								$0
								$0
								$0

Clear and Grub TOTAL = $557

II. EXCAVATION: RECONSTRUCTION = 1/3rd New Construction Cost

Flat Rate -	% Side Slope	Exc. Type Fact.	Production Factor	Cost/ Station	Width Factor	Total Stations	Sub Total
E-4100 Recon.		1.00	1.00	$29	1.00	41.82	$1,227
						0.00	$0
						0.00	$0
						0.00	$0
						0.00	$0

*End Haul, Over Haul, Large Fills/Cuts	Estimated Vol. (cy)	No. of Equip. Days	Cost/day	Sub Total
End Haul/ Over Haul				$0
Large Fills/ Cuts				$0

Excavation TOTAL = $1,227

III. BALLAST AND SURFACING :

Ballast source: E-4710 Quarry
Surface source:
Riprap source :

Description	cu.yds/sta	x stations =	cubic yards
incl. t/o, lndg & spot rockBallast (4"-)	78	41.82	3,278
Surfacing (2 1/2"-)		0.00	0
Pit Run	49		49

UNIT COSTS	Ballast	Surfacing	Riprap
Drill & Shoot	$2.00	$2.00	
Dig and load	$1.00	$1.00	
Crushing			
Purchase			
Haul *	$3.96	$3.96	$3.96
Spread	$0.80	$0.80	
Compact	$0.45	$0.45	
Strip			
Reclamation			
TOTAL ($/cy)	$8.21	$8.21	$3.96

* Haul Formula: (R.T.Miles/MPH+Delay)($/hr / Cy/load)

R.T. Miles =	12.0						
Ave. Speed =	25	Ballast (4"-)	3278	Cu. yds @	$8.21	/cu. yd =	$26,911
Delay (Hrs.)=	0.2	Surfacing (2 1/2	0	Cu. yds @	$8.21	/cu. yd =	$0
Cost / Hour =	$64.00	Pit Run	49	Cu. yds @	$3.96	/cu. yd =	$194
CY / Load =	11						

Rock total = $27,105

IV. CULVERTS AND FLUMES:

Description	Qty.	Gauge	Diameter	No/Length	Installed Cost/ft	Sub-total
	12	n/a	18"	36	$11.80	$5,098
	1	14	42"	50	$42.75	$2,138
	1	12	48"	105	$43.74	$4,593
Bands & Gaskets	14		18"		$9.90	$139
	1		42"		$73.76	$74
	2		48"		$96.00	$192

Culvert total = $12,232

V. DEACTIVATION

Description	Stations	Hours	$/Hour	Sub-total
E-4160 waterbars	16+93	8	$53	$424
8 hours backhoe				$0
				$0

Structure total = $424

Sub-TOTAL = $41,545

VI. GENERAL EXPENSES: Overhead & General Exp. Add 9% $3,739

VII. MOBILIZATION:

* Move in costs are averaged over all four sheets.

Description	$ per Move	# of Moves	Sub-total
Dump Trucks	100	6	$600
Grader	400	1	$400
Compactor	400	1	$400
Excavator	450	1	$450
Dozer D8)	400	0	$0
Front end loader	400	1	$400
Rock crusher	$1,500	0	$0
Dozer (D5)	$240	1	$240

Total Mobilization = $2,490 Mobilization sub-total = $623

Road No. E-4100 Recon.
Standard: Mainline (12' R.S.)
Stations: 41.82

SHEET TOTAL = $45,907

By: Greg Johnson

Date: 05/18/04

PACIFIC CASCADE REGION - ROAD COST ESTIMATE

SALE NAME: Long Jump

CONTRACT NUMBER: N/A

I. CLEARING AND GRUBBING:

Flat Rate -	% Side Slope	MBF/ac	Disposal Factor	Production Factor	Cost/ Station	Width Factor	Total Stations	Sub Total
E-4100 New Constr.	0-20%		1.00	1.00	$40	1.00	5.62	$225
								$0
								$0
								$0

Clear and Grub TOTAL = $225

II. EXCAVATION:

Flat Rate -	% Side Slope	Exc. Type Fact.	Production Factor	Cost/ Station	Width Factor	Total Stations	Sub Total
E-4100 New Constr.	0-20%	1.00	1.00	$88	1.00	5.62	$495

*End Haul, Over Haul, Large Fills/Cuts	Estimated Vol. (cy)	No. of Equip. Days	Cost/day	Sub Total
End Haul/ Over Haul				
Large Fills/ Cuts				

Excavation TOTAL = $495

III. BALLAST AND SURFACING :

Ballast source: E-4710 quarry
Surface source:
Riprap source :

Description	cu.yds/sta	x stations =	cubic yards
Ballast (4"-)	81	5.62	455
Surfacing (2 1/2"-)			0
Riprap			

UNIT COSTS	Ballast	Surfacing	Riprap
Drill & Shoot	$2.00		
Dig and load	$1.00		
Crushing			
Purchase			
Haul *	$3.72		
Spread	$0.80		
Compact	$0.45		
Strip			
Reclamation			
TOTAL ($/cy)	$7.97	$0.00	$0.00

* Haul Formula: (R.T.Miles/MPH+Delay)($/hr / Cy/load)

R.T. Miles =	11.0					
Ave. Speed =	25	Ballast (4"-)	455	Cu. yds @	$7.97 /cu. yd =	$3,628
Delay (Hrs.)=	0.2	Surfacing (2 1/2	0	Cu. yds @	$0.00 /cu. yd =	$0
Cost / Hour =	$64.00	Riprap	0	Cu. yds @	$0.00 /cu. yd =	$0
CY / Load =	11					

Rock total = $3,628

IV. CULVERTS AND FLUMES:

Description	Qty.	Gauge	Diameter (in.)	No/Length (ft)	Installed Cost/ft	Sub-total
	1	na	18	40	$11.80	$472
	1	na	18	30	$11.80	$354
Bands & Gaskets						
	2		18	1	$11.80	$24

Culvert total = $850

V. STRUCTURES

Description	Type	Width	Length	Cost/ft.	Sub-total
					$0
					$0
					$0

Structure total = $0

Sub-TOTAL = $5,197

VI. GENERAL EXPENSES: Overhead & General Exp. Add 11% $572

VII. MOBILIZATION:

* Move in costs are averaged over all four sheets.

Description	$ per Move	# of Moves	Sub-total
Dump Trucks	$100	6	$600
Grader	$400	1	$400
Compactor	$400	1	$400
Excavator	$450	1	$450
Dozer D8)	$400	0	$0
Front end loader	$400	1	$400
Rock crusher	$1,500	0	$0
Dozer (D5)	$240	1	$240

Total Mobilization = $2,490 Mobilization sub-total = $623

Road No. E-4100 New Constr.
Standard: Mainline (12' R.S.)
Stations: 5.62

SHEET TOTAL = $6,391

By: Greg Johnson

Date: 05/18/04

PACIFIC CASCADE REGION - ROAD COST ESTIMATE

SALE NAME: Long Jump

CONTRACT NUMBER: N/A

I. CLEARING AND GRUBBING:

Flat Rate -	% Side Slope	MBF/ac	Disposal Factor	Production Factor	Cost/ Station	Width Factor	Total Stations	Sub Total
Unit 1 Spurs 1 & 2	0--20%		1.00	1.00	$32	1.00	19.60	$627
								$0
								$0
								$0

Clear and Grub TOTAL = $627

II. EXCAVATION:

Flat Rate -	% Side Slope	Exc. Type Fact.	Production Factor	Cost/ Station	Width Factor	Total Stations	Sub Total
Unit 1 Spurs 1 & 2	0--20%	1.00	1.00	$66	1.00	19.60	$1,294
							$0
							$0
							$0

*End Haul, Over Haul, Large Fills/Cuts	Estimated Vol. (cy)	No. of Equip. Days	Cost/day	Sub Total
End Haul/ Over Haul	0	0	$0	$0
Large Fills/ Cuts	0	0	$0	$0

Excavation TOTAL = $1,294

III. BALLAST AND SURFACING :

Ballast source: E-4710 quarry
Surface source:
Riprap source :

Description	cu.yds/sta x stations =	cubic yards
incl. Landings Ballast (4"-)	80 19.60	1,572
Surfacing (2 1/2"-)		
Riprap		

UNIT COSTS	Ballast	Surfacing	Riprap
Drill & Shoot	$2.00		
Dig and load	$1.00		
Crushing			
Purchase			
Haul *	$3.49		
Spread	$0.80		
Compact	$0.45		
Strip			
Reclamation			
TOTAL ($/cy)	$7.74	$0.00	$0.00

* Haul Formula: (R.T.Miles/MPH+Delay)($/hr / Cy/load)

R.T. Miles =	10.0					
Ave. Speed =	25	Ballast (4"-)	1572	Cu. yds @	$7.74 /cu. yd =	$12,167
Delay (Hrs.)=	0.2	Surfacing (2 1/2	0	Cu. yds @	$0.00 /cu. yd =	$0
Cost / Hour =	$64.00	Riprap	0	Cu. yds @	$0.00 /cu. yd =	$0
CY / Load =	11					

Rock total = $12,167

IV. CULVERTS AND FLUMES:

Description	Qty.	Gauge	Diameter (in.)	No/Length (ft)	Installed Cost/ft	Sub-total
	1	na	18	50	$11.80	$590
Bands & Gaskets			1 - 18"@$9.90ea			$10

Culvert total = $600

V. STRUCTURES

Description	Type	Width	Length	Cost/ft.	Sub-total
					$0
					$0
					$0

Structure total = $0

Sub-TOTAL = $14,687

VI. GENERAL EXPENSES: Overhead & General Exp. Add 10% $1,469

VII. MOBILIZATION:

* Move in costs are averaged over all four sheets.

Description	$ per Move	# of Moves	Sub-total
Dump Trucks	100	6	$600
Grader	400	1	$400
Compactor	400	1	$400
Excavator	450	1	$450
Dozer D8)	400	0	$0
Front end loader	400	1	$400
Rock crusher	$1,500	0	$0
Dozer (D5)	$240	1	$240

Total Mobilization = $2,490 Mobilization sub-total = $623

Road No. Unit 1 Spurs 1 & 2
Standard: Mainline (12' R.S.)
Stations: 19.60

SHEET TOTAL = $16,779

By: Greg Johnson

Date: 05/18/04

PACIFIC CASCADE REGION - ROAD COST ESTIMATE

SALE NAME: Long Jump

CONTRACT NUMBER: N/A

I. CLEARING AND GRUBBING:

Flat Rate -	% Side Slope	MBF/ac	Disposal Factor	Production Factor	Cost/ Station	Width Factor	Total Stations	Sub Total
E-4140 Recon.	0--20%		0.00	0.00	$0	0.00	0.00	$0
								$0
								$0
								$0

Clear and Grub TOTAL = $0

II. EXCAVATION:

Flat Rate -	% Side Slope	Exc. Type Fact.	Production Factor	Cost/ Station	Width Factor	Total Stations	Sub Total
E-4140 Recon.	0--20%	0.00	0.00	$19	0.00	15.84	$301
--Ditch Cleaning							$0
							$0
							$0

*End Haul, Over Haul, Large Fills/Cuts	Estimated Vol. (cy)	No. of Equip. Days	Cost/day	Sub Total
End Haul/ Over Haul	0	0	$0	$0
Large Fills/ Cuts	0	0	$0	$0

Excavation TOTAL = $301

III. BALLAST AND SURFACING :

Ballast source: E-4710 quarry
Surface source:
Riprap source :

Description	cu.yds/sta	x stations	= cubic yards
Ballast (4"-)		0.00	0
Surfacing (4"-)	6	15.84	100
Riprap			

UNIT COSTS	Ballast	Surfacing	Riprap
Drill & Shoot	$2.00		
Dig and load	$1.00		
Crushing			
Purchase			
Haul *	$3.49	$3.49	$3.49
Spread	$0.80		
Compact	$0.45		
Strip			
Reclamation			
TOTAL ($/cy)	$7.74	$3.49	$3.49

* Haul Formula: (R.T.Miles/MPH+Delay)($/hr / Cy/load)

R.T. Miles =	10.0					
Ave. Speed =	25	Ballast (4"-)	0	Cu. yds @	$7.74 /cu. yd =	$0
Delay (Hrs.)=	0.2	Surfacing (4"-)	100	Cu. yds @	$3.49 /cu. yd =	$349
Cost / Hour =	$64.00	Riprap	0	Cu. yds @	$3.49 /cu. yd =	$0
CY / Load =	11					

Rock total = $349

IV. CULVERTS AND FLUMES:

Description	Qty.	Gauge	Diameter (in.)	lo/Length (f	Installed Cost/ft	Sub-total
	1	na	18	40	$11.80	$472
	1	na	18	30	$11.80	$354
	1	na	18	36	$11.80	$425
	1	na	18	30	$11.80	$354
	1	na	18	30	$11.80	$354
	1	na	18	34	$11.80	$401
	1	na	18	30	$11.80	$354
Bands & Gaskets			7--18" @ $9.90 ea			$69

Culvert total = $2,783

V. STRUCTURES

Description	Type	Width	Length	Cost/ft.	Sub-total
					$0
					$0
					$0

Structure total = $0

Sub-TOTAL = $3,433

VI. GENERAL EXPENSES: Overhead & General Exp. Add 12% $412

VII. MOBILIZATION:

* Move in costs are averaged over all four sheets.

Description	$ per Move	# of Moves	Sub-total
Dump Trucks	100	6	$600
Grader	400	1	$400
Compactor	400	1	$400
Excavator	450	1	$450
Dozer D8)	400	0	$0
Front end loader	400	1	$400
Rock crusher	$1,500	0	$0
Dozer (D5)	$240	1	$240

Total Mobilization = $2,490 Mobilization sub-total = $623

Road No. Unit 1 Spurs 1 & 2
Standard: Mainline (12' R.S.)
Stations: 15.84

SHEET TOTAL = $4,468

By: Greg Johnson

Date: 05/18/04